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WATER SUPPLY OUTLOOK FOR IDAHO



PROGRESSIVE SECTION
CURRENT SERIAL RECORDS

JAN 25 '77

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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

IDAHO DEPARTMENT OF WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

AS OF
JAN. 1, 1977

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SNOW COURSE MEASUREMENTS BY A SURVEY TEAM IN UTAH'S WASATCH RANGE.
ORC-254-10

PUBLISHED BY SOIL CONSERVATION SERVICE

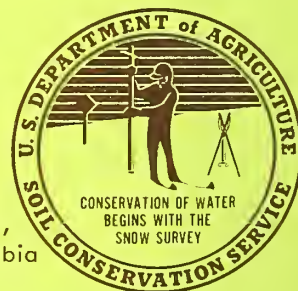
The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, 6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR IDAHO

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

R.M. DAVIS
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D C.

|||||

Released by

AMOS I. GARRISON, JR.
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
BOISE, IDAHO

In Cooperation with

R. KEITH HIGGINSON
DIRECTOR
IDAHO DEPARTMENT OF WATER RESOURCES

|||||

Report prepared by

JACK A. WILSON, Snow Survey Supervisor
E. DON HUBBLE, Asst. Snow Survey Supervisor
KATHERN G. WOOTTON, Statistical Assistant

SOIL CONSERVATION SERVICE
SNOW SURVEY SECTION
ROOM 345, 304 N. 8th. ST.
BOISE, IDAHO 83702

Snow accumulation in the mountains of Idaho prior to January 1, 1977 was practically non-existent. The fall season was one of the driest on record. A general storm over the entire state during the first week of January was the only major one of the season and the water content of the snow is very low. It is very doubtful if future storms will bring the watersheds to a normal condition this year. Soil moisture is poor, reflecting the effect of the below normal precipitation. Carryover storage in the irrigation reservoirs is good to excellent in most areas of the state as a result of the good runoff in 1976.

Based on January 1 snow surveys at key snow courses throughout the state, the water supply outlook for the 1977 irrigation season is quite grim. The snowpack varies from a low of 0% of normal on several watersheds to a high of 56% of average on the Montpelier Creek drainage in southeastern Idaho. This higher percentage is due largely to the fact that snowfall during the first week of January is included in the computations.

In general, approximately 40% of the total winter snowpack is accumulated by January 1. Extremely heavy snowfall and rain will be needed during the rest of the winter season to bring conditions to even a reasonable level.

Twenty three snow courses representing all drainages in Idaho with from 17 to 41 years of data report the lowest January 1 snow water equivalent on record. An analysis of data for these courses based on the 10 lowest years of record indicate that the odds of having a normal snowpack on April 1, 1977 are only 1 chance in 8.

It is quite apparent at this early date that water supplies for hydroelectric power generation will be critical and supplies for irrigation seriously deficient except where adequate carryover storage is available.

Water users and managers should start planning now for the most efficient use of water during the coming season.

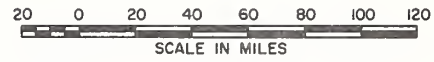
COMPARISON of SNOW COVER

RIVER BASIN WATERSHED	NO. OF COURSES AVERAGED	THIS YEARS SNOW WATER EXPRESSED AS PERCENT OF :	
		LAST YEAR	1958-72 AVERAGE
<u>UPPER COLUMBIA RIVER BASIN</u>			
Pend Oreille River	38	37	43
Clark Fork River	28	31	41
Flathead River	10	54	47
Priest River	4	48	31
Spokane River	2-4	43	24
<u>LOWER SNAKE RIVER BASIN</u>			
Clearwater River	4-11	28	37
Salmon River	9-10	12	13
<u>MIDDLE SNAKE RIVER BASIN - Northside</u>			
Big Wood River	3	0.4	0.4
Boise River	4-6	17	10
Payette River	7-8	12	11
Weiser River	1	11	8
<u>UPPER SNAKE RIVER BASIN</u>			
Snake Basin - Wyoming	12	--	20
Henry's Fork River	6-7	14	21
Teton River	2-3	12	18
Blackfoot River	1-2	37	46
<u>GREAT BASIN</u>			
Bear River	6	3	4
Montpelier Creek	4	52	56
Mink Creek	1	0.6	9
Cub River	3	4	--

SNOW WATER DEPTHS

As percent of 1958-72 15 year average
JANUARY 1, 1977

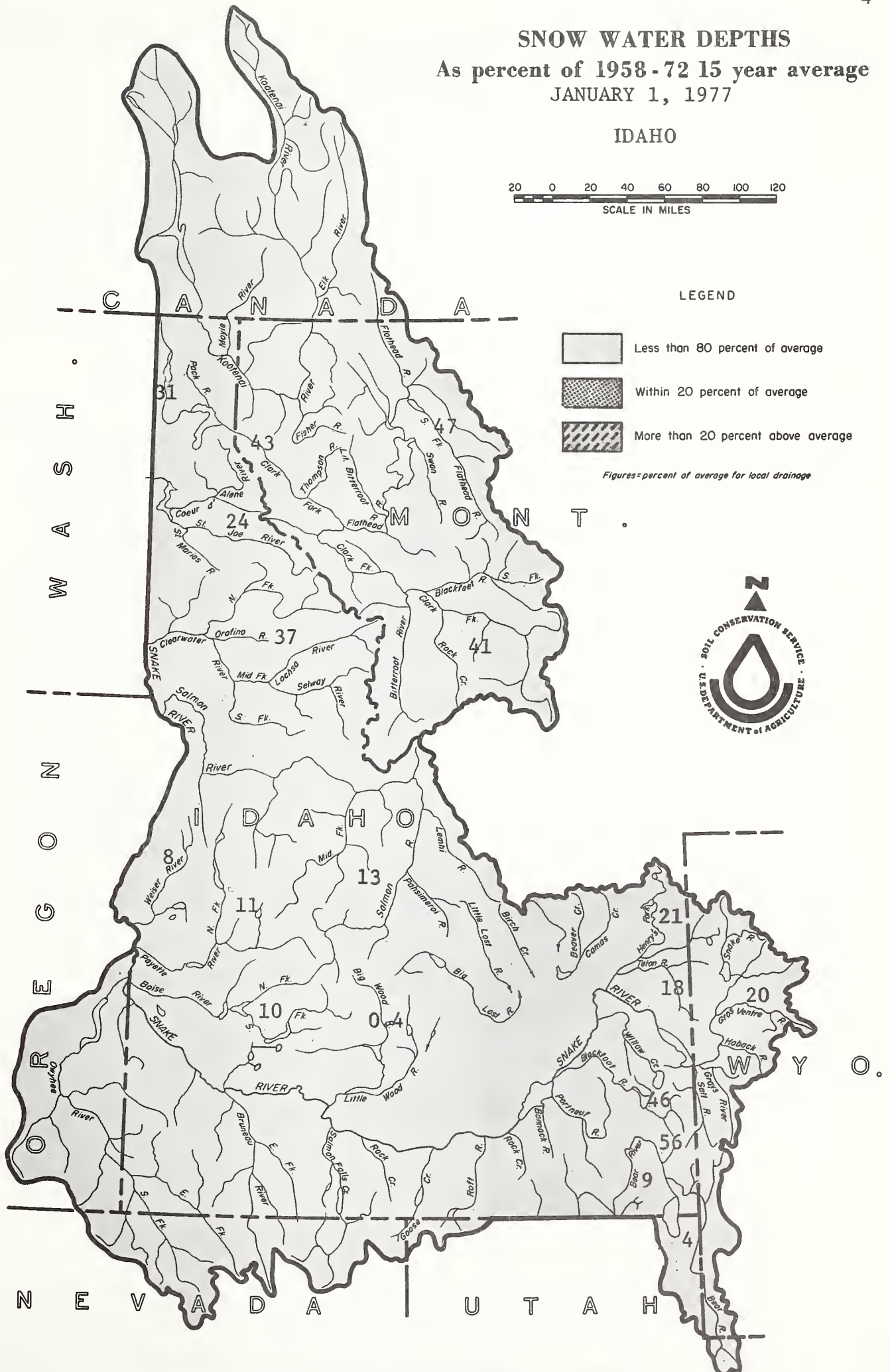
IDAHO



LEGEND

- Less than 80 percent of average
- Within 20 percent of average
- More than 20 percent above average

Figures=percent of average for local drainage

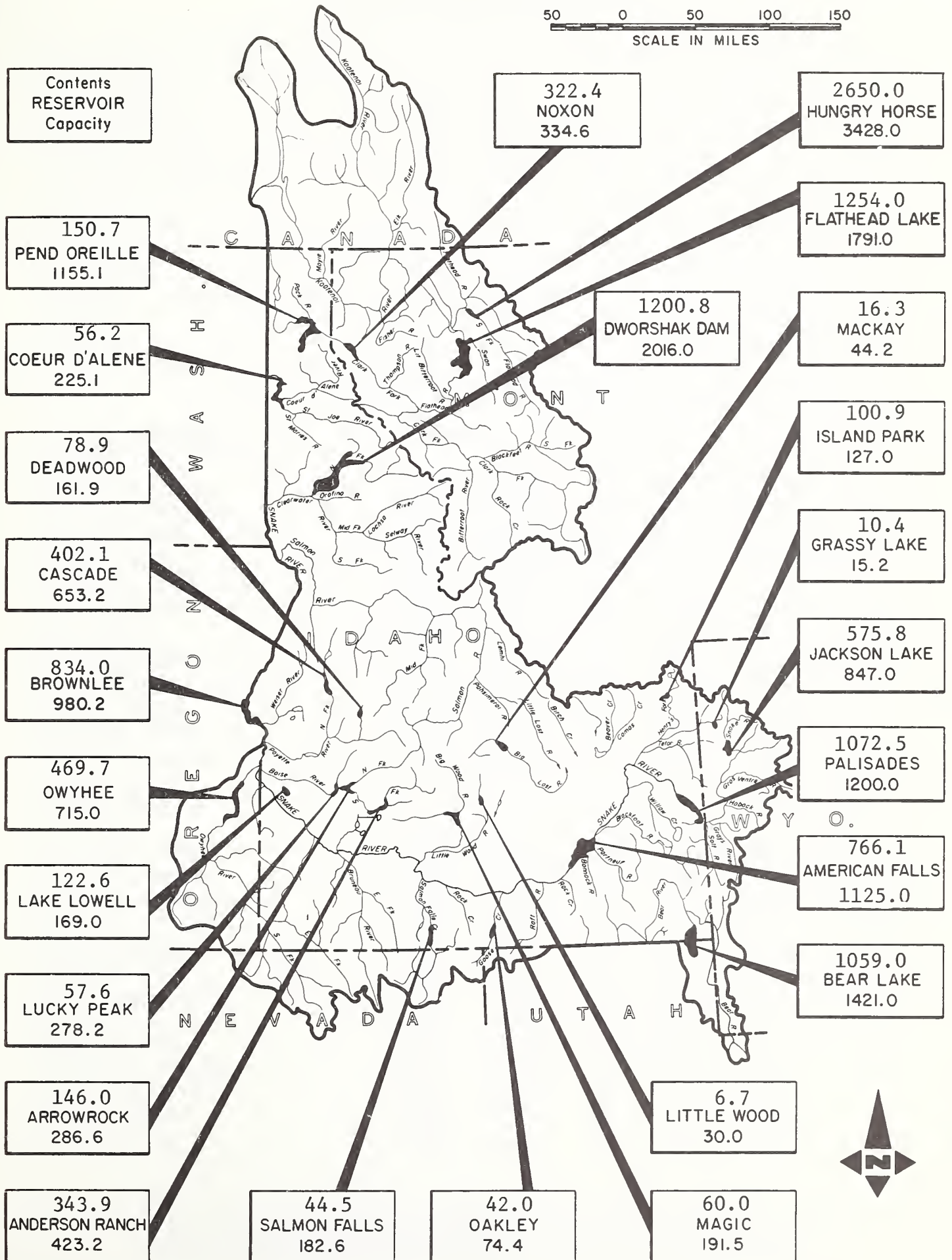


RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1958-72 AVERAGE
UPPER COLUMBIA BASIN				
Clark Fork - Pend Oreille				
Hungry Horse	3428.0	2650.0	2953.0	2766.0
Flathead	1791.0	1254.0	1462.0	1423.0
Pend Oreille	1155.1	150.7	427.0	431.2
Noxon	334.6	322.4	295.5	325.5
Spokane				
Coeur d'Alene	225.1	56.2	195.2	138.2
SNAKE BASIN				
Snake				
Jackson Lake	847.0	575.8	617.9	531.5
Palisades	1200.0	1072.5	1017.9	751.3
American Falls	1125.0	766.1	856.0	448.4
Island Park	127.0	100.9	108.2	82.0
Grassy Lake	15.2	10.4	10.4	9.6
Brownlee	980.2	834.0	960.7	792.7*
Goose-Trapper Creeks				
Oakley	74.4	42.0	40.9	12.6
Salmon Falls Creek				
Salmon Falls	182.6	44.5	109.0	25.5
Big Lost				
Mackay	44.2	16.3	18.8	27.7
Big Wood				
Magic	191.5	60.0	116.2	88.5
Little Wood				
Little Wood	30.0	6.7	13.8	11.6
Fish Creek				
Carey Valley	14.4	4.3	5.8	--
Boise				
Anderson Ranch	423.2	343.9	325.7	278.0
Arrowrock	286.6	146.0	264.2	204.9
Lucky Peak	278.2	57.6	38.1	60.3
Lake Lowell (Deer Flat)	169.0	122.6	125.7	106.3
Owyhee				
Owyhee	715.0	469.7	593.2	406.8
Payette				
Cascade	653.2	402.1	499.8	354.0
Deadwood	161.9	78.9	85.4	68.0
Weiser				
Mann Creek	11.1	2.7	4.1	--
Clearwater				
Dworshak	2016.0	1200.8	1230.0	--
GREAT BASIN				
Bear				
Bear Lake	1421.0	1059.0	1095.2	944.4
*Period of Record.				

RESERVOIR STORAGE

USABLE CONTENTS (1,000 Acre Feet)



SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average ^b

UPPER COLUMBIA RIVER BASINPEND OREILLE - PRIEST RIVER

Benton Meadow	2370	1/3	7	1.5	0.0	3.5
Benton Spring	4900	1/3	12	2.4	2.6	8.4
Schweitzer Bowl	4500	12/29	21	5.0	8.8	14.3*
Schweitzer Ridge	6100	12/29	25	5.8	19.2	21.6*

SPOKANE RIVER

Above Burke	4100	12/30	24	5.3	8.4	--
Fourth of July Summit	3200	12/30	0	0.0	T	4.1*
Lookout	5120	12/30	24	4.8	11.8	15.5
Sherwin	3200	1/4	14	1.9	7.9	--

LOWER SNAKE RIVER BASINCLEARWATER RIVER

Cayuse Airstrip	3700	12/29	14	1.6	4.8	5.5*
Cottonwood Butte	5140	1/4	9	0.7	6.3	--
Crater Meadows	6100	12/29	35	7.1	21.2	--
Crooked Fork	3600	12/29	16	2.6	6.7	--
Fish Lake Airstrip	5000	12/29	33	6.3	--	17.6*
Hemlock Butte	5500	12/29	32	6.5	25.8	--
Lolo Pass	5240	12/28	26	4.2	13.8	11.7*
Lower Snowhaven	5300	1/4	22	2.0	9.7	--
Pierce Ranger Station	3170	1/3	15	2.4	5.6	4.5
Savage Pass	6170	12/29	23	3.9	14.4	--
Shanghai Summit	4600	12/29	19	3.1	8.9	--
Upper Snowhaven	5600	1/4	19	1.7	8.8	--

SALMON RIVER

Big Creek Summit	6600	12/30	10	1.8	16.0	13.8*
#Boulder Creek	5500	12/30	7	0.8	7.2	10.0*
Brundage Mountain	7560	12/30	10	2.2	21.8	18.6*
#Deadwood Summit	7000	12/29	11	1.7	--	24.4*
#Galena Summit	8795	12/27	7	1.0	11.4	10.4
#Gibbons Pass	Mont. 7100	12/29	18	3.8	11.5	9.5
Mill Creek Summit	8870	12/30	8	1.0	12.6	10.5*
Moose Creek	6200	Not measured			9.6	5.6*
Morgan Creek	7580	12/29	5	0.6	6.3	5.9*
#Rock Flat Summit	5200	12/30	8	1.0	5.5	6.8
#Secesh Summit	6520	12/26	12	1.7	15.7	--
#Squaw Meadow	5800	12/26	11	1.3	14.0	--
Vienna Mine	8960	12/29	9	1.1	--	--

(b) 1958-72, 15 year period. #Not located directly on this drainage. * Estimated 1958-72, 15 year Average. (A) Aerial observation. W water content estimated. (SP) Pressure Pillow snow-water equivalent. (R) Radioactive Gage snow-water equivalent.

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average

MIDDLE SNAKE RIVER BASIN - NORTHSIDEBIG LOST RIVER

White Knob	7700	12/29	0	0.0	2.4	3.6
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BIG WOOD RIVER

Galena	7300	12/27	0	0.0	7.7	8.0
Galena Summit	8795	12/27	7	1.0	11.4	10.4
Graham Ranch	6200	12/27	0	0.0	4.2	5.6
#Vienna Mine	8960	12/29	9	1.1	--	--

BOISE RIVER

Atlanta Summit	7500	12/29	4	0.7	--	15.2*
Bad Bear	5500	1/4	9	0.9	5.4	6.5*
#Bogus Basin	6120	1/5	14	1.7	7.5	9.3
Bogus Basin Road	5360	1/5	7	0.9	1.9	2.4*
Graham Guard Station	5690	12/29	5	0.7	--	--
Jackson Peak	7000	12/29	7	1.0	--	--
Moore's Creek Summit	6100	1/4	14	1.9	16.7	13.0
Trinity Mountain	7780	12/29	3	0.5	--	19.1*
#Vienna Mine	8960	12/29	9	1.1	--	--

PAYETTE RIVER

#Big Creek Summit	6600	12/30	10	1.8	16.0	13.8*
Bogus Basin	6120	1/5	14	1.7	7.5	9.3
#Brundage Mountain	7560	12/30	10	2.2	21.8	18.6*
Cozy Cove	5400	12/29	7	1.0	--	6.9
Crawford Ranger Station	4800	12/30	0	0.0	0.0	3.1*
Deadwood Summit	7000	12/29	11	1.7	--	24.4*
#Jackson Peak	7000	12/29	7	1.0	--	--
Lake Fork	6000	12/26	10	1.2	6.5	--
Rock Flat Summit	5200	12/30	8	1.0	5.5	6.8
Secesh Summit	6520	12/26	12	1.7	15.7	--
Squaw Meadow	5800	12/26	11	1.3	14.0	--

WEISER RIVER

Boulder Creek	5500	12/30	7	0.8	7.2	10.0*
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SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average ⁶

MIDDLE SNAKE RIVER BASIN - SOUTHSIDERAFT RIVER

Howell Canyon	8000	12/28	0	0.0	12.3	9.9
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OWYHEE RIVER

#Seventy-six Creek	Nev.	7100	12/28	0	0.0	3.0	6.2*
Silver City		6400	12/30	0	0.0	4.6	5.6*
South Mountain		6340	12/30	0	0.0	4.8	4.9*

UPPER SNAKE RIVER BASINCAMAS-BEAVER CREEKS

Camp Creek	6800	12/29	0	0.0	4.3	4.3
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HENRYS FORK RIVER

Big Springs		6400	12/31	10	1.8	10.5	7.8
Grassy Lake	Wyo.	7265	12/29	24	3.5	22.9	14.1
Island Park		6315	12/31	8	1.4	8.8	6.1
Sawtell Mountain		8720	12/31	15	1.5	17.1	14.0*
Targhee Pass		7000	12/31	11	2.0	8.2	6.5*
Valley View		6500	12/31	8	1.4	7.8	6.3
White Elephant		7700	12/31	11	0.7	14.0	--

TETON RIVER

Darby Canyon	Wyo.	8250	12/27	19	3.4	--	--
Freds Mountain	Wyo.	8150	12/27	17	2.9	17.5	--
Garns Mountain		8300	12/27	17	3.2	--	--
Indian Meadows	Wyo.	8240	12/27	21	3.8	--	--
Jackpine Creek	Wyo.	7350	12/27	11	1.4	--	--
McRenolds Reservoir		6800	12/27	10	1.1	--	--
Miles Creek	Wyo.	7300	12/27	10	1.5	--	--
Pine Creek Pass		6750	12/27	7	1.0	12.6	6.6*
State Line		6650	12/27	7	1.2	10.9	5.7

BLACKFOOT RIVER

Slug Creek Divide	7225	1/4	16	3.3	7.1	--
Somsen Ranch	7000	1/5	21	2.4	8.2	5.2*

(b) 1958-72, 15 year period. #Not located directly on this drainage. * Estimated 1958-72, 15 year Average. (A) Aerial observation Water content estimated. (SP) Pressure Pillow snow-water equivalent. (R) Radioactive Gage snow-water equivalent.

SNOW

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Elevation				Last Year	Average <i>b</i>

GREAT BASINBEAR RIVER

Emigrant Summit	7350	12/27	7	0.8	12.4	9.2*
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Montpelier Creek

Giveout	6840	1/4	14	2.8	6.0	4.6*
Little Beaver	6970	1/4	14	2.8	6.6	5.4*
Montpelier Creek	6570	1/4	10	1.7	3.0	3.5*
Whiskey Flat	6985	1/4	12	2.4	3.1	3.7*

Mink Creek

Dry Basin	7900	12/27	8	0.9	--	--
#Emigrant Summit	7350	12/27	7	0.8	12.4	9.2*
Horseshoe Basin	8000	12/27	8	0.9	--	--
Liberty Spring	8600	12/27	9	1.1	--	--

Cub River

Cub River R.S.	5400	12/27	0	0.0	4.3	--
#Franklin Basin	8000	12/27	7	0.8	10.0	--
Willow Flat	6100	12/27	0	0.0	6.6	--

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Agencies and Organizations Cooperating in Idaho Snow Surveys

GOVERNMENT AGENCIES

States:

Idaho Department of Water Resources
State of Idaho Department of Fish and Game
University of Idaho
Idaho State University
Montana Agricultural Experiment Station
Montana State Water Conservation Board
Montana Cooperative Snow Surveys
Nevada Cooperative Snow Surveys
Oregon Agricultural Experiment Station
Oregon Cooperative Snow Surveys
Oregon State Engineer and Corps of
State Watermasters
Utah Cooperative Snow Surveys
Wyoming Cooperative Snow Surveys

Federal:

U.S. Army Engineers

U.S. Department of Agriculture
Forest Service
Agricultural Research Service
Statistical Reporting Service

U.S. Department of Commerce
NOAA, National Weather Service

U.S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Fish and Wildlife Service
Water Resources Division, Geological Survey
National Park Service
Bureau of Land Management

PUBLIC UTILITIES

The Montana Power Company
Washington Water Power Company
Idaho Power Company
Utah Power and Light Company

ORGANIZED PUBLIC AGENCIES

Big Lost River Irrigation District
Blaine Soil Conservation District
Boise Project Board of Control
Idaho Water District #01
Little Wood River Irrigation District
Mann Creek Irrigation District
Salmon Falls Creek Irrigation Company
Twin Falls Soil Conservation District
Big Wood Irrigation Company
Owyhee Project - North & South Board of Control
Valley Soil Conservation District
Portneuf Soil and Water Conservation District

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